Welcome to our annual report after what has been a demanding year for all of us. Despite the challenges I am pleased to present the achievements of our ARC research community who have harnessed innovative ideas and approaches to push forward our collective research agenda for the benefit of health and social care and the people of Wessex.

Professor Alison Richardson
NIHR ARC Wessex Director
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NIHR Applied Research Collaboration (ARC Wessex) – the ARC - was established in September 2019.

This is our second annual report.

**Our research aim** is to address the immediate issues facing the health and care system through applied health research. In order to meet this aim we have a Public and Community Involvement, Engagement and Participation (PCIEP) team, an Implementation team, an Academic Career Development team, and four teams of researchers working in the areas of Ageing and Dementia, Long Term Conditions, Healthy Communities and Workforce and Health Systems.

**Our objectives are:**

- To bring together the public & community, expert researchers from a wide range of disciplines, clinical leaders of health & care systems & other stakeholders.

- To work across the Wessex health & care system to ensure local reach & national impact
Our achievements

Ageing and Dementia
1. Established NeuroOnline study platform, recruiting from MyMedicalRecord, collecting data to improve digital self-management of dementia and neurodegenerative diseases.
2. Involver study: Literature review of what works to improve voice, choice, and control for people with cognitive impairment when they come into hospital.
3. A study on neurological long-term conditions helped identify risk factors that increase care needs for Parkinson’s patients.
4. Working to identify and test methods to improve early dementia diagnosis through automated imaging software (P2D) that captures unique spinal fluid analysis.

Healthy Communities
1. The team have been working to implement targeted testing for Hepatitis C in Community Pharmacies for at risk groups and are now joining a National programme for Hepatitis C elimination in those groups.
2. The team have updated their population food poverty risk model with population and location specific data to help better identify families at risk of childhood obesity.
3. The DALLI study is helping healthcare staff identify and respond to signs of domestic abuse in patients whilst being treated for a long-term condition.
4. The Operations Encompass Scheme promotes partnership between police and schools to help to reduce harm to children in domestic abuse prevalent homes. This scheme was evaluated to ensure it works effectively.

Long Term Conditions
2. The team were awarded funding to create new software that will compare routine primary care data with birth cohort data to find patterns in the onset of long-term conditions.
3. Created tool to identify those at high risk of kidney injury from non-steroidal anti-inflammatory drugs and low risk from disease modifying anti-rheumatic drugs to reduce unnecessary blood testing.
4. Expanded the testing of the Living with Chronic Illness Scale to different countries, languages, and cultures.

Workforce and Health Systems
1. The guidelines for the ‘Nursing Care Tool’ are being expanded to study the most effective nursing shift patterns for community and mental health settings.
2. Responded to request from University Hospital Southampton (UHS) to model potential number of patients predicted to be admitted and needing critical care due to Covid-19 to inform preparations and capacity planning.
3. Supported development of a digital architecture and collection of evidence to enable implementation of a COVID-19 integrated care pathway in the community for the early identification of deterioration and timely escalation to hospital support. Findings incorporated into National COVID Oximetry@Home Programme and toolkit.
4. Worked closely with industry partners to develop a tool to support more effective district nurse scheduling for home visits in a social care setting.
Academic career development

• We awarded 11 internships, and to date 2 have secured PhD fellowships and 2 have been promoted.

• We are supporting 8 PhD students with fellowship awards.

• We have 29 post-doctoral researchers working with our project teams as collaborators or partners, with 4 fellowships to be awarded by end of 2021.

• We ran a career development stakeholder event bringing together 118 people.

• We offered an Engaging with Statistical Support workshop (now online).
Public & community involvement, engagement & participation (PCIEP)

Developed and published our Strategy 2021-24 with 6 key aims:

• Have PCIEP involved throughout strategic and operational levels: *we included PPI in PhD funding and ARC Funding Competitions.*

• Strengthen communication and outreach: *we ran 85 Coffee Mornings with 50+ researchers.*

• Share key learnings and feedback: *With over 800 responses from the Coffee Mornings, PPI helped shape new proposals and collaborations.*

• Provide researchers with PPI training: *Delivered to 250+ people.*

• Ensure everyone has a voice and respect different perspectives.
National priorities

Our ARC is leading work to deliver a programme of research to meet a government priority, namely Healthy Ageing, Dementia and Frailty. We are working with Greater Manchester, Peninsula and Yorkshire and Humber ARCs. We ran a nationwide competition to select projects with the best chance of national or cross regional success and funded 3 projects. These start in Autumn 2021. We will make a major contribution to the national programme addressing multi-morbidity, and leading a project working with first time offenders of domestic violence and abuse.
The wider picture

Collaborations with our partner and member organisations

• We continue to work closely with our partners across Wessex. Through these partnerships we have received £1.24 million in co-funding to support projects and academic career development activities. We are contributing to the NIHR REACH initiative which aims to establish an approach to building capacity and capability of research leaders and support the development of early career researchers across Wessex.
The wider picture

Links with Industry

• **Ageing & Dementia:** are working with the Brendoncare Foundation across multiple projects to improve physical activity in older people and dementia care planning.

• **Long Term Conditions:** are engaged with the Clinical Research Network Technology Support Programme (TSP) and AutonoMe to evaluate industry potential for dementia-friendly home appliances.

• **Healthy Communities:** the Domestic Violence (DALLI) project is working with charitable and healthcare organisations including Oakshealth Care and Yellow Door, while in the pharmaceutical sector, Gilead Sciences continue to support our project into widening the use of community pharmacies for Hepatitis C testing.

• **Workforce and Health Systems:** are working with Abicare to test the effectiveness of automated routing and scheduling in the domiciliary care sector.
Impact on healthcare

Material Citizenship
A project about inclusion of everyday objects in dementia care supporting people to live the lives they want to was designed and developed in collaboration with care home staff at Brendoncare Knightwood. It received national press coverage in the Guardian and BBC Radio Solent.

The Safer Nursing Care Tool (SNCT)
Developed by CLAHRC Wessex, SNCT is used to predict the correct level of nurse staffing needed. This year we analysed 69 wards in 3 hospital trusts to ensure high accuracy and effectiveness. This is the first staffing tool endorsed by NICE, supported by NHS Improvement/England (NHSEI) and used in most acute hospital-based Trusts in England.

COVID-19 virtual ward
Initial work by the ARC with North and Mid Hants Clinical Commissioning Groups and Wessex AHSN informed development of a COVID-19 care pathway, where patients were remotely monitored at home. RECOxCARE provides patients with pulse oximetry monitors at home to measure oxygen levels and allows clinicians to spot early deterioration, react quickly and reduce mortality risk.
Forward view

We are helping to develop the Dorset Innovation Hub, a central point for local organisations and trusts to accelerate the adoption of proven innovations that meet the needs of Dorset’s population.

Our researchers are looking at the application of Artificial Intelligence for multimorbidity. With funding from a NIHR Development Award, they will build a consortium to develop a system to identify key areas during an intervention to help prevent the development of multimorbidity.

We will launch our National Priorities Ageing and Dementia Programme in Autumn 2021, selecting large scale research and implementation projects.

We are launching a programme for researchers to teach them how to improve the chances of an innovation having the best chance of adoption. We are also developing internships specific to social care and data science contexts.

We have started a regular NIHR ARC Wessex seminar series for our members, showcasing completed projects across all themes.